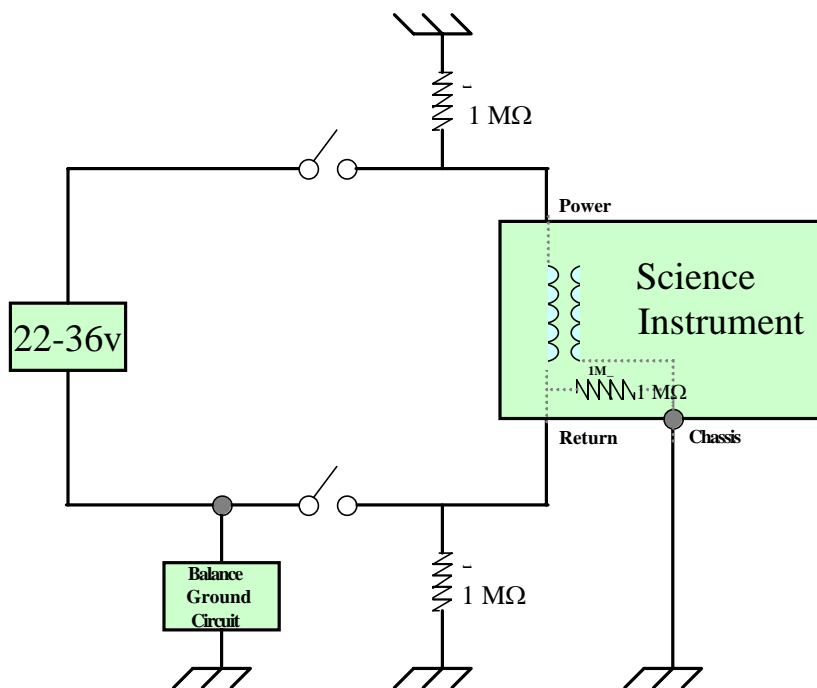


**MSL Proposal Information Package  
CHANGE LOG / ERRATA LOG**

<b>Date</b>	<b>Revision</b>	<b>Changes</b>
3/30/04	Initial release	New
4/14/04	April 14, 2004	Section 1.0: Delete from list of options being investigated that may affect instrument accommodation capabilities: Further limit the volume available for instrument accommodation in the payload module
		Section 2.1.4: Clarification of earliest landing date
		Throughout: Hyperlinks updated and made active
4/26/04	ERRATA	Section 3.4.5 (Page 42): 100 KBS corrected to 100 kbs ( <i>KiloBits per Second</i> )



**Figure 3.4.4: Grounding and Shielding Diagram**

#### 3.4.5 Science Payload Data Interfaces

The MLS flight system is expected to make available three different bus interface types for instrument communication to the host. These interfaces are redundant Mil Std 1553B buses, a redundant Low Power/Bandwidth UART Bus (100 kbs ~~KBS~~), and High Speed Point-to-Point (RS422) Communication interfaces. These interfaces are illustrated in Figure 3.4.5. The Mil Std 1553B bus is the default means of communication between the host and the instruments. For instruments where the power constraints of the Mil Std 1553B bus are not acceptable and can work within the constraints of the 100 kbs ~~KBS~~ bandwidth, a Low Power/Bandwidth UART Bus is provided. For instruments that require high-speed communication and/or high data volume with the host, a limited number of point-to-point high-speed serial interfaces may be provided to the instruments based on availability, data rate needs and system-level optimization of overall cost.

The redundant Mil-Spec 1553B Instrument Interface bus would be the default means of communicating with the instruments and Guidance, Navigation and Control sensors within the MSL Avionics architecture. This bus would conform to the military standard, and would be transformer coupled and redundant.

A low power/bandwidth (100 kbs ~~KBS~~) redundant differential communication bus may be used for instrument communication to the host. This low power bus would use the industry standard 16550 UART for basic communication across separate command and data busses. MSL has defined a custom protocol for this interface, which consists of the following: unique start sequence, address field, data field and ending with a 16-bit checksum.

A limited number of point-to-point high-speed serial interfaces may be provided to the instruments. These high-speed bidirectional interfaces would use a custom protocol sent over a three-wire RS422 hardware interface (clock, data, frame) with separate command and telemetry wiring. Instruments requesting use of high-speed interfaces will be required to provide dual interface wiring and circuitry to communicate with the redundant strings of the Command and Data Handling system. Commands to an instrument are sent at a rate of 1 Mbps. Serial telemetry from an instrument can be collected at rates of up to 6 Mbps.